Missouri Department of Natural Resources

ENERGY STAR® Qualified Office Equipment:
Purchasing ENERGY STAR Qualified Office Equipment and Implementing Energy Savings Functions

Energy Center fact sheet 3/2006

Most people don't think about saving money and improving the environment when turning on their computer or other office equipment. The introduction of personal computers (PCs) and other electronic equipment has created an increase in office productivity. This equipment, along with the specially conditioned rooms to house it and the network servers that support it, has introduced a steadily increasing electrical demand. It is an expense that can be reduced and controlled by purchasing efficient ENERGY STAR qualified equipment and activating the power management features.

To control and reduce this increase in energy consumption, computers and other electronic office equipment now come with standard power management features. An easy way to know if your computer or other office equipment has power management features is to look for the ENERGY STAR label, which is a standard on most new office equipment. This fact sheet outlines what to look for when purchasing office equipment. Being energy wise can help reduce pollution that is produced in the generation of electric power.

Computers, Monitors and Printers

Computers: If left inactive, ENERGY STAR qualified computers with power management features activated enter a low-power mode and use 15 watts or less of power. New chip technologies make power management features more reliable, dependable, and user-friendly than just a few years ago. The main driving force in this advancement in technology has been the laptop computer market and the need to extend battery life. These features work on network computers as well, allowing the PC to enter the power management mode and to wake up for updates at night. On the ENERGY STAR Web site, one can find software programs that allow the network administrators to set the power management features of an entire network of computers simultaneously.

As a management practice network administrators should consider selecting a particular night of the week to perform network patches and updates. On this night, allow employees to leave their CPUs on, but ask them to turn off the monitors. This practice will allow for additional energy and cost savings the rest of the week, over a network that is on 24-hours a day.

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Power supplies: ENERGY STAR addresses powering down computers when not in use. The new 80 PLUS Program is geared toward reducing a computer's energy use when in operation. The 80 PLUS Program targets the power supply found inside nearly all desktop computer models. Users of qualified computers can obtain substantial energy savings by improving the energy efficiency of their internal ac-dc power supplies from typical levels of 60-70 percent to greater than 80 percent, while also improving power factor. On average, 80 PLUS qualified power supplies reduce computer energy use by 15 percent to 25 percent. This translates to an annual savings of approximately 85 kWh per year in desktop PCs and 300 kWh per year in low-end servers – that's a savings of $25 to $30 for the life of each computer.

In order to take advantage of lower energy use in the active mode, your best bet is to demand 80 PLUS compliant power supplies in all your computer purchases.

Monitors: To earn the ENERGY STAR label, computer monitors must meet stringent requirements for the On, Sleep and Off modes. In the On mode, the maximum allowed power varies based on the monitor's resolution. A standard 17-inch CRT monitor uses about 70 watts. In Sleep mode, computer monitors must consume four watts or less. In Off mode, computer monitors must consume two watts or less.

EPA ENERGY STAR
Million Monitor Drive Campaign
Has recognized the University of Missouri Rolla for committing to activate the power management functions on computer monitors campus wide.

www.energystar.gov/index.cfm?c=power_mgt.pr_pm_step6

Screen savers are not an energy-efficiency feature. If you do use a screen saver, be sure your monitor is set to display images for a pre-determined period of time and then enter the low-power mode.

For PCs, setting up the energy management control is just like setting your screen saver. Go to Control Panel/Display/screensaver tab, select power, and set a time for the monitor to go into the Sleep mode. Even for monitors with a low-power Sleep mode, you can save more energy and possibly extend your monitor's life if you manually shut it off completely during nights, weekends and long periods of non-use, such as your lunch hour or while attending meetings.

Printers that have earned the ENERGY STAR label can cut the equipment's electricity use by more than 60 percent. ENERGY STAR qualified printers with the power management feature activated automatically enter a low-power Sleep mode after a period of inactivity. Printers are generally turned on 24 hours a day, so the power management features are important for saving energy.

Spending a large portion of time in low-power mode not only saves energy, but also helps equipment run cooler and last longer. Businesses that use ENERGY STAR qualified equipment may realize additional savings on air conditioning and maintenance.

Additional savings can be realized by purchasing printers, fax machines and copiers that print duplex. Using the duplex mode could save more than $45 per month in paper cost.

Enabling the Low-Power Sleep (Standby) Mode

To generate the full energy savings, ENERGY STAR qualified office equipment often depends on users enabling the low-power mode. Users and the IT staff have to commit to energy management to realize the potential savings. If the low-power mode is disabled for convenience or to allow file backups and virus updates at night, savings will not be achieved.

IT administrators can activate the low-power features by using software tools that activate the monitor and computer power management features on an entire network of computers simultaneously. On the ENERGY STAR Web site, one can find free software tools as well as information on several commercially available network management systems.

Office Equipment Energy Facts

Potential savings by implementing the power management systems on computers.						
			Annual operating cost per one computer			
	Operating Power (watts)	Sleep Mode Power (watts)	On 9 hours per day 5 days per week, off rest of the time	Sleep mode 3 of 9 hours per work day	On 24 hours per day 7 days per week, w/ no sleep mode	Sleep mode 18 of 24 hour day and week ends
Speakers	4	N/A	$0.55	N/A	$2.28	N/A
17" CRT monitor	89	10	$12.34	$8.69	$50.68	$13.00
17" LCD Flat Screen Monitor	24	0	$3.33	$2.22	$13.67	$2.22
Computer	80	20	$11.09	$8.32	$45.55	$6.93

- For every 1,000 PC users that leave their PC speakers on just during work hours, but never use them, **$550 per year** is spent on utility cost. If these same individuals leave their speakers on after work hours, an additional **$1,730 per year** will be spent.
- For every 1,000 PC users that leave their 17-inch CRT monitor on after work hours and do not set up the power management function, **$50,680 per year** will be spent on utility cost, not including the added air conditioning load. There is also additional cost when computers are not being used during long periods throughout the workday.
- Total office equipment electricity use in the U.S. is roughly 3 percent of all electricity use.
- The US Census Bureau estimated that in 2003, 70 million American households had one or more computers.
- Computer manufacturers shipped an estimated 186 million computers in 2004. (TechWeb)
- The number of personal computers worldwide is expected to double to about 1.3 billion from 2004 to 2010.

Have Your Company Specify ENERGY STAR Qualified Equipment

For an individual, it may be as simple as looking for the ENERGY STAR label on the product when purchasing it. Successful energy management programs adopt a procurement policy as a key element for their overall strategy. When purchasing equipment for a company, it is important that the purchasing agent work with the information technology (IT) staff to define procurement language. Procurement language should indicate that equipment "shall meet the ENERGY STAR specifications for energy efficiency." The language should also provide a detailed explanation of ENERGY STAR specifications for specific equipment, i.e., computer, monitor, printer, etc.

For details on writing procurement language and key product criteria, see the following ENERGY STAR link: www.energystar.gov/index.cfm?c=bulk_purchasing.bus_purchasing.

It is also recommended that a procurement policy for purchasing energy efficient computers include additional language discussing the power supplies of the computers. Computers with 80 PLUS power supplies should be given preferred selection points when evaluating bids. These power supplies shall have a minimum efficiency of 80 percent when tested at each of the following three load conditions: 20 percent, 50 percent and 100 percent of rated power supply output and maintain a true power factor of 0.9 or greater at 100 percent of rated power supply output. This language would provide an incentive for suppliers to increase the availability of the more efficient power supplies. Additional information on energy-efficient power supplies can be found at www.80plus.org/index.html.

Look for the ENERGY STAR Label on These Products:

Fax Machines	Laptops
Mailing Machines	Scanners
VCRs	DVD players
Cordless Phones	Televisions
Home Audio	Power Supplies

Multifunction devices, such as a combination printer and fax unit, will consume less energy since one unit can do the work of two.

By acting now and using new model procurement language that addresses ENERGY STAR power management features and the active energy use of the power supplies, you can help reduce your company's energy use and improve the efficiency of computers for all consumers.

Resources

Web sites: www.energystar.gov/
www.eere.energy.gov/femp/procurement/
www.80plus.org/index.html
www.efficientpowersupplies.org/

For More Information

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